

Claims

1. Cylinder structure for an implement having a frame and movable in a forward direction over material, comprising:
 - a cylinder having a movable first rod;
 - implement frame structure including cylinder mounting structure supporting the cylinder from the implement in a location wherein the cylinder will contact the material as the implement moves over the material;
 - a shield connected to the first rod for movement with the rod so that the rod remains protected from the material as the first rod is moved.
2. The cylinder structure set forth in claim 1 wherein the shield is supported from the frame.
3. The cylinder structure as set forth in claim 2 including roller structure connected between the shield and the frame and supporting the shield for movement relative to the frame with the rod.
4. The cylinder structure as set forth in claim 1 wherein the cylinder comprises a steering cylinder connected to steerable wheels, and the shield moves with the rod to avoid contact with the steerable wheels during turning of the implement.
5. The cylinder structure as set forth in claim 4 wherein the steering cylinder is supported rearwardly of the shield.
6. The cylinder structure as set forth in claim 4 wherein the steering cylinder also includes a second rod opposite the first rod, and wherein the shield is connected between the first and second rods for movement with the first and second rods to protect the first and second rods over substantially all of a steering range of the steerable wheels while avoiding contact with the steerable wheels over the steering range.
7. The cylinder structure as set forth in claim 6 further including a shield support fixed to the frame, and wherein the shield is carried on the shield support.
8. The cylinder structure as set forth in claim 7 wherein the shield support includes rollers and the shield includes a portion supported on the rollers.

9. The cylinder structure as set forth in claim 7 wherein the shield is movable between a mounted position on the shield support and a release position for removal from the shield support, and structure selectively preventing movement of the shield from the mounted position during implement operation.

10. The cylinder structure as set forth in claim 1 including means for movably supporting the shield from the frame to facilitate lateral movement of the shield while limiting torque transmission between the rod and the shield.

11. Steering structure for an implement having a frame and movable in a forward direction over material, comprising:

a steering cylinder having a movable rod structure;

implement frame structure including cylinder mounting structure supporting the cylinder from the implement in a location wherein the cylinder will contact the material as the implement moves over the material;

a wheel assembly supported from the frame structure and connected to the steering cylinder, the wheel assembly movable over a range of steered positions by the steering cylinder;

a shield supported by the frame structure adjacent the steering cylinder; and wherein the shield is movable in response to movement of the wheel assembly by the steering cylinder to provide protection of the cylinder and rod structure substantially over the range of steered positions.

12. The steering structure as set forth in claim 11 wherein the steering cylinder is located forwardly of the implement frame structure and the shield is located forwardly of the steering cylinder.

13. The steering structure as set forth in claim 11 including a shield support connected to the frame structure and including rollers supporting the shield.

14. The steering structure as set forth in claim 11 wherein the shield is connected to the rod structure.

15. The steering structure as set forth in claim 14 including a bracket rotatably received over the rod structure and connected to the shield to constrain the shield for lateral movement with the shield structure while facilitating relative rotation between the rod structure and the shield.

16. The steering structure as set forth in claim 11 wherein the rod structure includes first and second rods extending from opposite ends of a cylinder barrel, and wherein the shield is connected to outermost ends of the rod structure.

17. The steering structure as set forth in claim 16 further including low friction guide structure connected to the frame structure and maintaining the shield in a protective attitude at the shield moves with the rod structure.

18. Steering structure for an implement having a wheel frame and movable in a forward direction over material, comprising:

a single steering cylinder having a barrel and movable cylinder rods extending from opposite ends of the barrel;

cylinder mounting structure connected to the wheel frame and supporting the cylinder from the implement;

first and second wheel assemblies supported from the wheel frame and connected to the rods, the wheel assemblies movable over a range of steered positions by the steering cylinder;

a shield supported from the frame adjacent the steering cylinder; and

wherein the shield is movable in response to movement of the wheel assembly by the steering cylinder to provide protection of the cylinder and the rods substantially over the range of steered positions.

19. The steering structure as set forth in claim 18 wherein the cylinder mounting structure supports the cylinder forwardly of the wheel frame and the shield is supported forwardly adjacent the cylinder so that the cylinder and the rods are protected from the material over substantially the entire range of steered positions.

20. The steering structure as set forth in claim 18 including a shield support connected to the wheel frame, anti-friction support carried by the shield support and supporting the shield for lateral movement in a cylinder-protecting orientation, and structure connecting the rods to the shield to move the shield laterally with operation of the cylinder, wherein the shield extends laterally substantially the entire distance between outermost ends of the rods to protect substantially all of each rod over the entire range of steered positions.